

NON-PUBLIC?: N  
ACCESSION #: 9003060244  
LICENSEE EVENT REPORT (LER)

FACILITY NAME: VOGTLE ELECTRIC GENERATING PLANT PAGE: 1 OF 5  
UNIT 1

DOCKET NUMBER: 05000424

TITLE: REACTOR TRIP DUE TO INADVERTENT CLOSURE OF MAIN STEAM  
ISOLATION

VALVE

EVENT DATE: 01/24/90 LER #: 90-001-00 REPORT DATE: 02/23/90

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 090

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR  
SECTION:

50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:

NAME: R. M. ODOM TELEPHONE: (404) 826-3201

NUCLEAR SAFETY AND COMPLIANCE

COMPONENT FAILURE DESCRIPTION:

CAUSE: D SYSTEM: EA COMPONENT: 83 MANUFACTURER: G187

B EA HS E155

REPORTABLE NPRDS: No

No

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On 1-24-90, partial stroke testing of a Main Steam Isolation Valve (MSIV) was in progress. During a previous test, the valve had failed to reopen automatically at the 10% closed position as designed. As a result, plant personnel were prepared to install a jumper to reopen the valve if it failed to reopen automatically. The test began and an indicator illuminated at approximately 10% closed; however, unknown to the personnel involved, there were two limit switches which were not adjusted to actuate concurrently. Consequently, when the indicator illuminated, the other limit switch had not yet actuated and it appeared that the valve would not reopen automatically. The jumper was installed to

initiate valve reopening; however, position indication was lost and the MSIV went fully closed. MSIV closure resulted in a rapid decrease in water level in Steam Generator (SG) #4 to the low-low level setpoint and an automatic reactor trip occurred at 0133 CST.

An investigation determined that when the jumper was installed, the MSIV control fuses failed, which caused the valve to close.

Corrective actions include: a) fuse replacement, b) procedure revision to include a caution that the indicator may light prior to the valve receiving the reopen signal, and, c) limit switch adjustment to obtain concurrent actuation.

END OF ABSTRACT

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#### A. REQUIREMENT FOR REPORT

This report is required per 10 CFR 50.73 (a)(2)(iv) because an unplanned actuation of the Reactor Protection System occurred.

#### B. UNIT STATUS AT TIME OF EVENT

At the time of this event, Unit 1 was operating in Mode 1 (Power Operation) at 90% of rated thermal power. Other than that described herein, there was no inoperable equipment which contributed to the occurrence of this event.

#### C. DESCRIPTION OF EVENT

On 1-24-90, partial stroke testing of Main Steam Isolation Valve (MSIV) 1HV-3036A was in progress in accordance with Procedure 14842-1, "Main Steam Isolation Valves Partial Stroke Inservice Test". During a previous quarterly test in August 1989, the valve did not automatically reopen as designed when it reached the 10% closed position. Electricians had been assigned to the auxiliary relay panel to assist during the test. Their responsibility was to install a jumper to reopen the valve if it did not automatically reopen at the 10% closed position. If the valve reopened as a result of the jumper, this would confirm that a failed contact was the cause of the failure to reopen automatically. The test began and at approximately 10% closed, the blue light indicator came on in the control room but the valve continued to close because the limit switch which initiates reopening had not yet actuated. The electricians were advised and they installed the jumper to initiate

valve reopening. As they installed the jumper, position indication was lost and the MSIV continued to the full closed position.

Closure of the MSIV resulted in a rapid decrease in water level in Steam Generator (SG) #4. The level decreased to the low-low water level setpoint and an automatic turbine/reactor trip occurred at 0133 CST. The Main Feedwater System isolated and the Auxiliary Feedwater System actuated as designed. Atmospheric Relief Valve (ARV) 1PV-3030 opened to control pressure in SG #4. Control room operators responded properly to control SG water levels. Steam dump valve 1TV-500C indicated not fully closed and control room operators initiated a Main Steam Line Isolation (MSLI) on the remaining three steam lines to limit the Reactor Coolant System (RCS) cooldown rate.

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As the generator tripped off the grid, unit power transferred from the Unit Auxiliary Transformers (UATs) to the Reserve Auxiliary Transformers (RATs). However, a non-safety related 4160 volt bus, 1NA04, failed to transfer and power was lost to its connected loads. These included the Turbine Plant Cooling Water (TPCW) pump #1 discharge valve, air compressors, and condenser vacuum breakers. While attempting to re-connect the loads to other buses, control room operators found they were unable to open breaker 1NA04-09, so this was done locally.

Additional discrepancies noted were a low flow alarm from the Auxiliary Component Cooling Water (ACCW) System, and a Service Air System failure to isolate.

#### D. CAUSE OF EVENT

1. A review of the MSIV design revealed that there are two limit switches which were not adjusted to actuate concurrently. When the blue light illuminated as the result of one limit switch actuating, the other limit switch had not yet actuated and it appeared that the valve had failed to reopen. When the electricians installed the jumper, the MSIV control power fuses failed, resulting in closure of the MSIV.

2. The MSIV closed when its actuator fuses blew. Although a simulation of the event failed to duplicate the blown fuses and MSIV closure, it is our engineering judgement that the Georgia Power Company electricians inadvertently created a momentary electrical short which led to the blown fuses. This apparent cognitive personnel error was not the result of failing to

follow approved procedures or the result of any unusual characteristics of the work location.

3. The cause of the 1NA04 bus failure to transfer was due to the failure of the alternate feeder breaker from the RAT to close. This was the result of burnt relay contacts which did not allow an adequate electrical connection. The burnt contacts were due to the relay being out of adjustment.

4. Steam dump valve 1TV-500C closed properly. However, the position indication was faulty due to a limit switch being out of adjustment.

5. The inability of the control room operators to open breaker 1NA04-09 was due to a faulty handswitch. An examination of the handswitch concluded that the failure was an isolated incident.

6. The cause of the ACCW low flow alarm was a momentary loss of power which occurred during load transfer.

7. The failure of the Service Air System to isolate will be investigated during the refueling outage which is scheduled to begin February 23, 1990.

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#### E. ANALYSIS OF EVENT

The MSIV went to its safe (fail close) position upon loss of power when the control power fuses blew. Main Feedwater isolated and Auxiliary Feedwater actuated as designed and a normal reactor trip occurred. Control room operators responded properly to stabilize SG water levels during the trip recovery. Based on these considerations, there was no adverse effect on plant safety or the health and safety of the public as a result of this event.

#### F. CORRECTIVE ACTIONS

1. The blown fuses were replaced and Procedures 14842-1 and 14842-2 have been revised to require that the MSIV control room handswitch be moved to the "open" position upon receipt of blue light indication. This indication ensures that the valve has actuated and represents completion of the quarterly stroke test. Initiation of the automatic reopening is not required to be tested. Additionally, a caution note will be added to the procedure stating that the blue light may actuate prior to the

valve receiving the reopen signal. Finally, during the 1990 refueling outages (Units 1 and 2), the appropriate limit switches will be adjusted to actuate concurrently.

2. The electricians involved have been counseled regarding the necessity of exercising caution when testing circuits having the potential for causing a reactor trip.

3. The relay with the burnt contacts in the RAT feeder breaker has been replaced and the new relay has been adjusted to prevent recurrence of this failure.

4. The steam dump valve limit switches were readjusted.

5. The faulty handswitch which resulted in the inability to open breaker 1NA04-09 has been replaced.

6. A design change is being investigated to eliminate the ACCW low flow alarm as a result of a momentary loss of power. We expect to have a course of action identified by 3-1-90.

7. Corrective actions to prevent recurrence of the Service Air System's failure to isolate will be based on the results of the investigation to be performed during the refueling outage which is scheduled to begin 2-23-90.

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## G. ADDITIONAL INFORMATION

### 1) Failed Components:

a) 1NA04-09 Handswitch manufactured by Electro Switch Corp.  
Model # 32762M-105

b) 1NA04 Relay manufactured by Gould Controls  
Model # 191921T6-R.2

### 2) Previous Similar Events:

LER 50-424/1989-018, dated 10-30-89.

Although this 1989 event progressed similarly following fuse failure, there was no personnel involvement, and the corrective actions were not applicable to the prevention of the 1-24-90 event.

3) Energy Industry Identification System Code:

Main Steam System - SB

Service Air System - LF

Main Feedwater System - SJ

Reactor Coolant System - AB

Auxiliary Feedwater System - BA

4160 Non-1E Electrical System - EA

Turbine Plant Cooling Water System - KB

Auxiliary Component Cooling Water System - CC

ATTACHMENT 1 TO 9003060244 PAGE 1 OF 1

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February 23, 1990

W. G. Hairston, III  
Senior Vice President  
Nuclear Operations  
ELV-01340  
0241

Docket No. 50-424

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D. C. 20555

Gentlemen:

VOGTLE ELECTRIC GENERATING PLANT  
LICENSEE EVENT REPORT  
REACTOR TRIP DUE TO INADVERTENT CLOSURE OF MAIN  
STEAM ISOLATION VALVE

In accordance with 10 CFR 50.73, Georgia Power Company hereby submits the enclosed report related to an event which occurred on January 24, 1990.

Sincerely,

W. G. Hairston, III

WGH,III/NJS/gm

Enclosure: LER 50-424/1990-01

xc: Georgia Power Company

Mr. C. K. McCoy

Mr. G. Bockhold, Jr.

Mr. R. M. Odom

Mr. P. D. Rushton

NORMS

U. S. Nuclear Regulatory Commission

Mr. S. D. Ebnetter, Regional Administrator

Mr. D. B. Matthews, Director, Project Directorate II-3

Mr. R. F. Aiello, Senior Resident Inspector

\*\*\* END OF DOCUMENT \*\*\*

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